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1350754

COMPLETE SPECIFICATION

5 SHEETS

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Sheet 1

FIG.1.

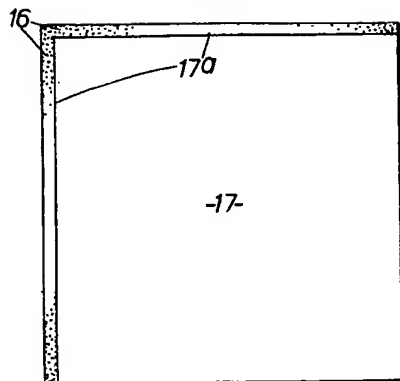


FIG.2.

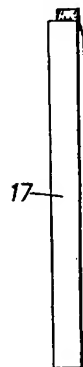


FIG.3.

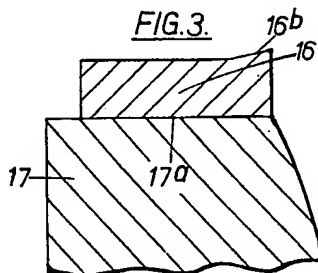


FIG.4.

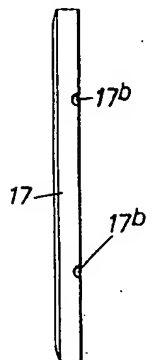


FIG.5.

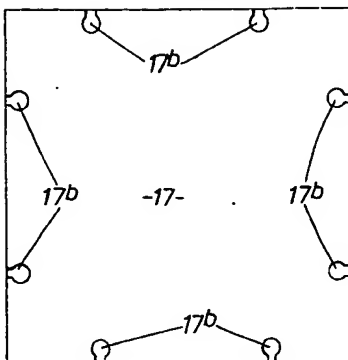
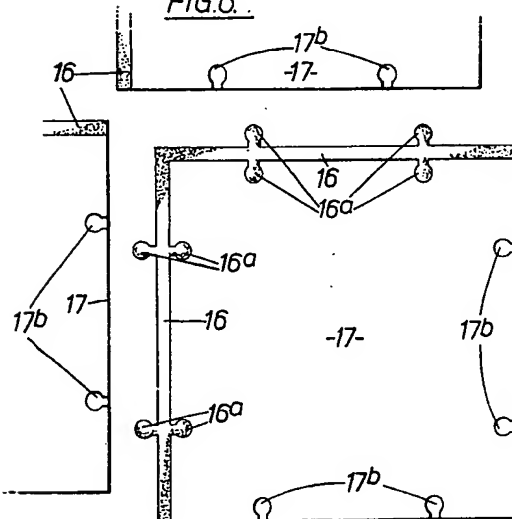


FIG.6.



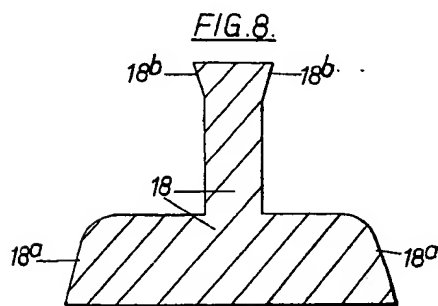
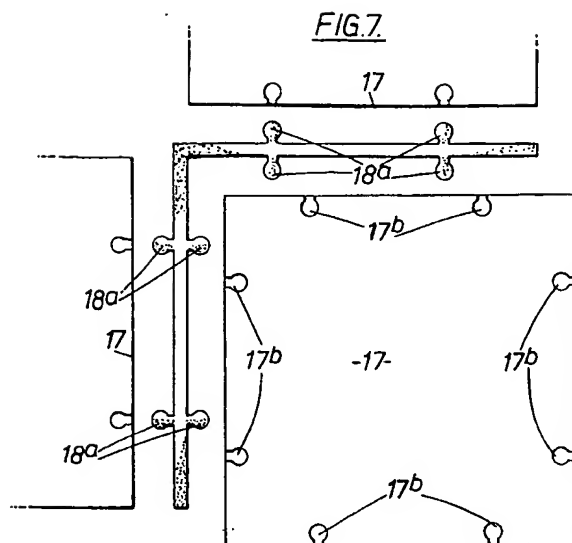
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FIG.9.

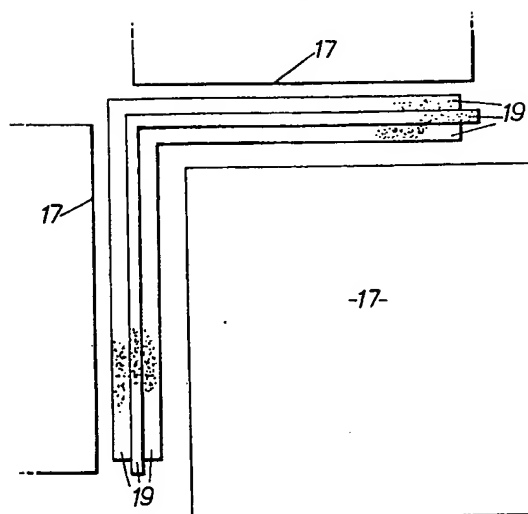
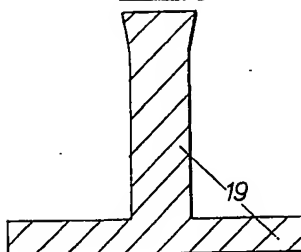
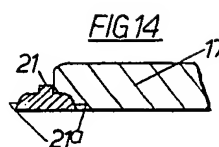
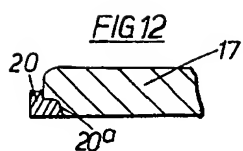
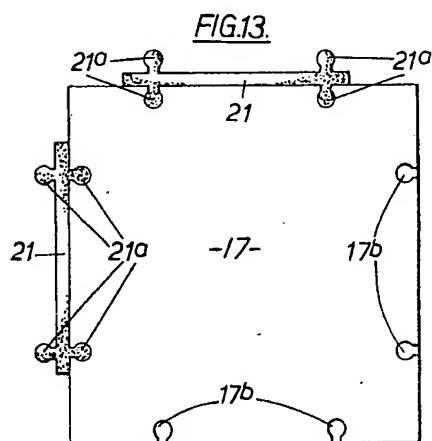
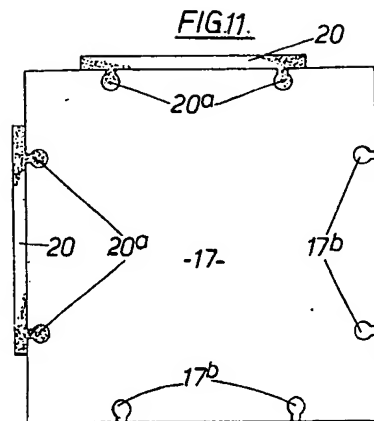


FIG.10.





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## (54) IMPROVEMENTS IN AND RELATING TO TILE-FIXING

(71) We, THE BRITISH CERAMIC RESEARCH ASSOCIATION, a Body Corporate organised under British law, of Queens Road, Penkhull, Stoke-on-Trent, Staffordshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to ceramic tiles.

The term "tiles" is used in a broad sense to include both glazed and unglazed tiles used for walls and similar substantially upright surfaces, soffits and similar horizontal under-surfaces, and those intended for floors and similar horizontal surfaces.

In the mounting of tiles in position the back faces of the tiles, or the surface to which they are to be fixed, or both, is or are coated with a fixative preparation and the tiles are then positioned on the surface. Then, after a lapse of time, probably several hours or on another day, a grouting medium is fed into the joints between adjacent tiles to fill up the joints and provide a satisfactory finished appearance to the tiled surface. Usually, but not always, the tiles are provided with spacer nibs on their edges by which the width of the joints may be determined.

The necessary time interval between the fixing and the grouting procedures is a source of inconvenience and expense and moreover the appearance of the tiled surfaces, rather than being enhanced by the regularity of the joints between the tiles, can be spoiled by defective workmanship in the grouting operation.

The invention consists in a single square or oblong tile for mounting in position upon a wall, floor or other surface, and having already affixed to it before being so mounted a preformed grouting strip along one or two edges only of the tile and visible from the face of the tile, the arrangement

being such that when the tile with the grouting strip or strips affixed to it is mounted in position the grouting strips serve to space adjacent tiles apart by a predetermined distance.

The invention also consists in a method of mounting a single square or oblong tile in position upon a wall, floor or other surface, in which the tile is prepared for mounting by having affixed to it along one or two only of its edges a strip of preformed grouting material visible from the face of the tile, the tile with the said grouting strip or strips affixed to it being then mounted in position, the strips serving to space an adjacent tile apart by a predetermined distance.

The grouting strips may extend over the full depth or thickness of the tiles, or alternatively they may extend only along the front portion of the edges of the tiles which will be visible in use.

The grouting strips may have a projecting lip or bead, preferably along the front of their edges, to assist in forming a seal when abutted up to an adjoining tile edge or another grouting strip.

The grouting strips may have projections designed to fit into recesses in the sides, usually at the back faces, of the tiles.

Alternatively the grouting strips may be shaped to provide seatings for the margins of the tiles, for instance by forming the strips of T-section or providing them with small flexible sealing strips or pads.

Constructional forms of the invention will now be described with reference to the accompanying drawings in which:

Figure 1 is a rear elevation of a plain-edged tile having a grouting strip attached to it on two sides.

Figure 2 is a side view thereof.

Figure 3 is an enlarged section of the grouting strip and edge portion of the tile.

Figure 4 is a side view of a tile with recesses in the side edges on the back face.

Figure 5 is a rear elevation thereof.

Figure 6 is a rear elevation of three tiles such as shown in Figures 4 and 5, provided with a grouting strip ready for assembly.

5 Figure 7 shows a similar group to Figure 6 but having a pre-formed grouting strip which interlocks the recessed edges of the tiles.

Figure 8 is an enlarged section through 10 the strip across a pair of projections.

Figures 9 and 10 are similar views to Figures 7 and 8 respectively but showing plain-edged tiles and a T-section strip.

Figure 11 is a rear elevation of a tile 15 similar to that shown in Figures 4 and 5 showing the use of separator strips to be described.

Figure 12 is a cross section through an edge of the tile with the separator strip, as 20 illustrated in Figure 11.

Figures 13 and 14 are similar views to Figures 11 and 12 respectively showing another form of separator strip.

Referring to Figures 1, 2 and 3, pre-formed grouting strips 16 are applied to a 25 plain-edged tile 17 on two adjacent sides 17<sup>a</sup>.

In Figures 4, 5 and 6 a different form of tile is shown having recesses 17<sup>b</sup> on the side 30 edges at the back face of the tile and the grouting strips have projections 16<sup>a</sup> which fit into these recesses.

In Figures 7 and 8 pre-formed grout strips 18 are shown separate from the tiles, the 35 strips having dual projections 18<sup>a</sup> which fit into recesses 17<sup>b</sup> when the strips are applied to the tiles. The strips 18 are formed with lips or beads 18<sup>b</sup> similar to the lips 16<sup>b</sup> of Figure 3.

40 Figures 9 and 10 show plain-edged tiles 17 and the grouting strips 19 are of T-section providing seatings for the margins of the tiles.

Figures 11 and 12 show pre-formed strips 45 20 having projections 20<sup>a</sup> which fit into recesses 17<sup>b</sup> of the tile but in this case the strip is not a complete grouting strip and does not extend along the whole edge of the tile; it acts as a partial grouting strip and as a 50 spacer and the grouting is completed on the site by the tile fixer in a conventional way.

Figures 13 and 14 show a similar arrangement but in this case pre-formed strips 21 55 have dual projections 21<sup>a</sup> so that these act as a partial grouting strip and spacer as in Figures 11 and 12, but in addition exercise an interlocking effect on adjacent tiles.

It is not desired to restrict the invention to 60 any methods of attaching the strips to the edges of the tiles. In attaching the pre-formed strips to the edges of the tiles the edge of a tile may be presented to an injection moulding apparatus so that the strip is run along the edge of the tile. Where the 65 tiles and strips have recesses and projections

these may serve or assist in attaching the tiles and strips together. An adhesive may be applied in order to seal the strips to the tiles, and this may be done in addition to 70 providing the interlocking recesses and projections.

The preformed strips may be flexible or rigid. Examples of suitable materials are elastomers such as silicone, flexible polyurethane, ethylene vinyl acetate copolymer 75 or ethylene-propylene copolymer and plasticised P.V.C. Examples of rigid materials are epoxy resins, polyester resins, rigid polyurethane, unplasticised P.V.C. or polypropylene. When additional sealing strips or 80 pads are affixed to rigid grouting strips the former may be made of any of the above-mentioned elastomers or synthetic rubbers or rubber-like materials.

Both the tiles and the grouting strips may 85 be in white or any desired colours. It is no longer necessary to provide the conventional spacer nibs on the edges of the tiles.

The fixative medium by which the tiles 90 are mounted in position will be effective also in securing the grouting strips to the tiles but a fixative may also be used to ensure more positive adhesion between the grouting strips and the sides of the tiles, and in some cases, as when the grout consists of a ther- 95 moplastic resin or is otherwise susceptible to temperature, heat may be applied to ensure adhesion.

It will be seen that the peculiar shape of the tile recesses 17<sup>b</sup> illustrated, narrowest at 100 the edges of the tile will achieve some sideways locking action in conjunction with the projections 16<sup>a</sup> on the grouting strips 16 and similarly in the case of the equivalent forms of inter-engaging recesses and projections 105 illustrated; it will be necessary to exert slight sideways pressure in positioning the strips on the tiles.

There will usually be at least one joint 110 without grout after the tiles and the pre-formed grouting strips have been mounted in position; strips of grout will be made to fit these gaps and they may be made to fit one or more sides of a tile; preferably long 115 strips will be available which will be cut to size, and in order to accommodate gaps of unusual widths the strips may be available in several widths. The strips may be with or without projections but if projections are formed and are not needed they 120 can be readily removed by a suitable tool.

#### WHAT WE CLAIM IS:—

1. A single square or oblong tile for 125 mounting in position upon a wall, floor or other surface, and having already affixed to it before being so mounted a preformed grouting strip along one or two edges only of the tile and visible from the face of the tile, the arrangement being such that when 130



the tile with the grouting strip or strips affixed to it is mounted in position the grouting strips serve to space adjacent tiles apart by a predetermined distance.

5 2. A tile as claimed in Claim 1 in which the grouting strip or strips extend over the full depth or thickness of the tile.

10 3. A tile as claimed in Claim 1 in which the grouting strip or strips extend over only the front portion of the edges of the tile which will be visible in use.

4. Tiles as claimed in any of the preceding claims having grouting strips formed with projecting lips or beads to assist in  
15 forming a seal when abutted up to an adjoining tile edge or another grouting strip.

5. Tiles as claimed in Claim 4 in which the projecting lips or beads are formed along  
20 the front portion of the edges of the strips.

6. Tiles as claimed in any of the preceding claims having grouting strips formed with projections designed to fit into recesses  
25 in the sides of the tiles.

7. Tiles as claimed in Claim 6 in which the projections are adapted to fit into recesses at the back faces of the tiles.

8. Tiles as claimed in Claim 6 or 7 in  
30 which there are projections on both edges of the strips.

9. Tiles as claimed in any of the preceding claims 1-5 having grouting strips shaped to provide seatings for the margins of the  
35 tiles.

10. Tiles as claimed in Claim 9 in which the strips are of T-section.

11. Tiles as claimed in Claim 9 in which

the strips are provided with small flexible sealing strips or pads. 40

12. Tiles as claimed in any of the preceding claims in which the grouting strips extend along only a portion of the sides of the tiles so that while they constitute partial  
45 grouting strips and act as spacers they require to be supplemented by the application of a grouting medium in the normal way when the tile is mounted.

13. Tiles as claimed in any of the preceding claims in which the grouting strips  
50 are made of a rigid material.

14. Tiles as claimed in any of the preceding claims 1-12 in which the grouting strips are made of a flexible material.

15. Tiles substantially as hereinbefore  
55 described with reference to the accompanying drawings.

16. A method of mounting a single square or oblong tile upon a wall, floor, or other surface, in which the tile is prepared  
60 for mounting by having affixed to it along one or two only of its edges a strip of pre-formed grouting material visible from the face of the tile, the tile with the said grouting strip or strips affixed to it being then  
65 mounted in position, the strips serving to space an adjacent tile apart by a predetermined distance.

17. A method of mounting tiles substantially as hereinbefore described. 70

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